

MEDICAL.

REPORT OF THE PRINCIPAL CIVIL MEDICAL OFFICER AND INSPECTOR-GENERAL OF HOSPITALS FOR THE YEAR 1919.

I HAVE the honour to submit the following report on the health and sanitation in Ceylon and on the administration of institutions of the Ceylon Civil Medical Department for the year ended December 31, 1919.

SECTION I.—POPULATION.

2. The estimated population of Ceylon on December 31, 1919, inclusive of immigrant coolies (but exclusive of military and shipping), was 4,757,596 (of these, 7,349 were Europeans). This total is an increase of 71,233 on the previous year's estimate of population.

SECTION II.—PUBLIC HEALTH.

3. *Vital Statistics.*—161,403 births were registered, which is equivalent to 33·8 per 1,000 of the population per annum, as compared with 183,384 in the previous year, showing a decrease of 21,981. The deaths registered in 1919 totalled 168,323 as compared with 149,407 (an increase of 18,916 over the previous year), which is equivalent to 35·3 per 1,000. The total number of persons treated in the hospitals in 1919 was 133,195, of whom 12,637 died. The numbers for 1918 were 105,450 patients, with a mortality of 9,827. At dispensaries 1,499,891 persons were treated, who paid 2,254,162 visits in 1919, as against 1,203,063 persons, who paid 1,833,462 visits in 1918.

4. With regard to the causation of deaths, the following table shows the same, registered under the several classes of disease, for the year under review:—

I.—General diseases—

(a) Epidemic diseases ..	29,515
(b) Septic diseases ..	127
(c) Tuberculosis diseases ..	3,819
(d) Venereal diseases ..	215
(e) Cancer or malignant diseases ..	494
(f) Other general diseases ..	13,610

II.—Diseases of the nervous system and organs of special sense ..

III.—Diseases of the circulatory system ..

IV.—Diseases of the respiratory system ..

V.—Diseases of the digestive system ..

VI.—Non-venereal diseases of genito-urinary system and annexa ..	1,060
VII.—The puerperal state ..	3,664
VIII.—Diseases of the skin and cellular tissues ..	10,950
IX.—Diseases of bones and organs of locomotion ..	13
X.—Malformations ..	11
XI.—Diseases of early infancy ..	7,261
XII.—Old age ..	5,085
XIII.—Affections produced by external causes ..	2,537
XIV.—Ill-defined diseases ..	29,356

5. The more notable causes of death were the following diseases:—

1. Diarrhoea ..	15,402	10. Anchylostomiasis and its <i>sequelæ</i> ..	2,608
2. Infantile convulsions ..	14,797	11. Puerperal septicæmia ..	1,685
3. Pneumonia ..	10,752	12. Malaria ..	1,124
4. Rickets ..	6,807	13. Enteric fever ..	658
5. Anæmia ..	4,868	14. Tetanus ..	298
6. Intestinal parasites ..	4,329	15. Rabies ..	57
7. Dysentery ..	3,785	16. Deaths attributed to pyrexia of unknown origin ..	22,872
8. Phthisis ..	3,529		
9. Dropsy ..	3,421		

6. Deaths due to preventable diseases, i.e., to diseases due to faulty sanitary conditions, over crowding, soil infection, defective or infected water supplies, &c., amounted to 11,705. This figure does not include infantile diarrhoea or infantile convulsions, though it is probable that a large number of deaths from infantile convulsions are due to malarial infection, and a large number of cases from infantile diarrhoea to improper dieting, defective sanitary surroundings, and neglect.

7. *Infantile Mortality.*—The infantile mortality in the 33 principal towns during the year was at the rate of 259 per 1,000, as compared with 252 per 1,000 in the previous year and 233 per 1,000 in the penultimate year. 14,797 deaths from infantile convulsions were registered during the year. During 1919 55 midwives were trained at the De Soysa Lying-in Home, Colombo. The number so trained since September 1, 1909, has been 260. The large number trained during the year is due to the increased accommodation made available at this institution. Midwives have been appointed to Government hospitals in large centres to try and decrease the infant mortality.

8. *Vital Statistics on Estates.*—The mean birth-rate on estates was 43·0 per 1,000, and the death-rate 58·5. The mean birth-rate during 1918 was 52·8 per 1,000, and the mean death-rate 75·2. The principal causes of death were:—

Pneumonia ..	5,657	Anchylostomiasis ..	1,752
Debility ..	3,906	Infantile convulsions ..	1,537
Diarrhoea ..	1,994	Phthisis ..	293
Dysentery ..	1,807	Dropsy ..	239

9. *Influenza* continued to prevail throughout the greater part of the Island in 1919, though the incidence of the disease was not so widespread, and the type of the disease was fortunately much less dangerous. As regards the hospital returns, the admissions were almost as numerous as in 1918, but the death-rate was less than one-third of that year. There were two periods of greatest prevalence in most parts of the Island, viz., May–June and November–December. The following table gives a comparison of the admissions and deaths as regards the several Provinces during the two years :—

Province.		1919.		1918.	
	Cases.	Deaths.	Cases.	Deaths.	
Western Province ..	.. 4,637	.. 214	.. 2,922	.. 587
Central Province ..	.. 1,485	.. 62	.. 1,528	.. 405
Northern Province ..	.. 46	.. 1	.. 564	.. 67
Southern Province ..	.. 247	.. 8	.. 401	.. 52
Eastern Province ..	.. 106	.. 11	.. 92	.. 14
North-Western Province ..	.. 336	.. 64	.. 642	.. 68
North-Central Province ..	.. 46	.. 5	.. 175	.. 14
Province of Sabaragamuwa ..	.. 625	.. 41	.. 449	.. 193
Province of Uva ..	.. 258	.. 14	.. 621	.. 74
Total ..	7,786	420	7,394	1,474	

It will be noted that there was a great rise of admissions in the Western Province, and a marked fall in the Northern, North-Central, and Uva Provinces ; in fact, all Provinces, except the Western, Eastern, and Sabaragamuwa, show a fall in hospital admissions. Public and private benevolence in the way of the supply of food and medical comforts and personal aid to the sick did much to mitigate the sufferings of the poorer classes in the larger towns.

10. *Malaria* was more prevalent in 1919, and was the cause of much sickness, and directly and indirectly to considerable mortality. The number under treatment in Government hospitals was 13,816, as compared with 8,154 in 1918 and 6,190 in 1917 ; and the deaths amongst such cases were 255, as compared with 130 in 1918 and 107 in 1917. As regards Government dispensaries, treatment was given to 602,356, as compared with 359,700 in 1918. The mortality amongst these dispensary cases is not available. In addition to the cases of malarial fever as given above, there were some 2,885 cases of malarial cachexia (chronic illness due to previous attacks of malaria) admitted to Government hospitals in 1919, as compared with 1,904 such cases in 1918. The following table shows the comparative prevalence of the disease in the different Provinces as far as can be judged from hospital admissions in the past three years :—

Province.	1919.		1918.		1917.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
General Hospital, Colombo ..	849	.. 18	.. 2,023	.. 43	.. 2,429	.. 27
Western Province ..	2,377	.. 48	.. 2,023	.. 43	.. 2,429	.. 27
Province of Uva ..	1,513	.. 26	.. 1,257	.. 26	.. 748	.. 12
North-Western Province ..	2,127	.. 55	.. 1,030	.. 16	.. 414	.. 11
Northern Province ..	1,602	.. 12	.. 1,024	.. 11	.. 1,065	.. 13
Central Province ..	1,635	.. 25	.. 885	.. 8	.. 773	.. 13
Province of Sabaragamuwa ..	1,280	.. 23	.. 858	.. 6	.. 860	.. 17
North-Central Province ..	1,336	.. 32	.. 454	.. 10	.. 167	.. 4
Southern Province ..	731	.. 11	.. 409	.. 8	.. 370	.. 8
Eastern Province ..	366	.. 3	.. 214	.. 2	.. 134	.. 2
	13,816	253	8,154	130	6,960	107

The increase in the number of admissions was especially noticeable in the North-Western, North Central, and Southern Provinces. Apart from Government hospitals and dispensaries, a large number of cases are treated in estate hospitals and dispensaries. The widespread prevalence of this disease seems to call for more determined efforts of control. The extension and re-organization of the Sanitary Department and the proposed establishment of a Research Institute will, it is hoped, lead to the adoption on a greater scale of the measures which in other parts of the world have been proved to be capable of materially lessening the incidence of the disease. The probable extension in the near future of paddy cultivation in districts notorious for malaria will call for measures of protection to those engaged on that work. The problem of malaria control is a complicated one, and requires much consideration to get the best results from the expenditure necessarily entailed. Quinine to the value of Rs. 307,008·28 was distributed free for preventive and curative purposes.

11. *Plague*.—The total number of cases reported was 89, with 83 deaths. Of these, 82 cases arose in Colombo, 6 were detected on ships arriving at the port, and 1 was a case in the Northern Province of a passenger arriving from India. The cases in Colombo were practically confined to the infected area near the harbour, where the disease has been endemic for some years past. Fortunately no centre of infection established itself outside Colombo this year. The six cases found on board ships were suitably dealt with.

12. *Cholera*.—After some years of comparative freedom from cholera, unfortunately an outbreak of this disease occurred in two areas, the Hambantota District and the Badulla District. The outbreak first occurred in July in the town of Hambantota, and continued to prevail until September, and during that period it spread to Tangalla, Tissamaharama, Matara, and Weligama. A second localized outbreak occurred at Yokanda, near Tissamaharama, in November, where there were 26 cases, with 6 deaths. The number of cases in Hambantota and the neighbouring villages was 447, with 338 deaths. In October an outbreak occurred in the Province of Uva, the first recognized cases occurring in the Civil Hospital, Badulla, and it was not until nearly the end of the year that it was stamped out. The most serious outbreak was in the village of Meegahakiula, some 15 miles from Badulla, where some 52 cases occurred. In the whole of Province of Uva there were some 170 cases, with 120 deaths. One fatal case

occurred on an estate in the Province of Sabaragamuwa in a newly arrived cooly from India. Ten cases were treated at the Infectious Diseases Hospital, Colombo, all being ship-imported cases, except one. The first outbreak at Hambantota was possibly due to the importation of the disease from India by some member of a travelling circus. The outbreak in the Province of Uva was probably due to infection conveyed there from the Southern Province, and the localized outbreak at Yokanda was traced to a cultivator who had passed through Buttala, then an infected area. When an outbreak occurs in a district, control is very difficult owing to the tendency of the inhabitants of infected villages to bolt to neighbouring villages. Moreover, adequate treatment in out-of-the-way places, some very difficult of access, is not readily carried out, and the mortality is necessarily high. With the exception of the explosive outbreak at Meegahakiula, which was due to the public water supply becoming infected, the other cases were due to contact infection. The disease in the various centres was effectively controlled by the Medical Officers and Inspectors of the Sanitary Department under Dr. G. S. van Rooyen, Acting Senior Sanitary Officer.

13. *Smallpox*.—Only some 35 cases in all were treated in 1919, and of these, 9 were ship-imported cases. Twenty-two cases were treated in the Infectious Diseases Hospital, Colombo, with 6 deaths; 4 cases occurred in the Northern Province, with 1 death; 5 in the Province of Uva, with 2 deaths; and two each in the Province of Sabaragamuwa and the Southern Province, all of whom recovered. Apart from the ship-imported cases, all the others were due to infection from recent arrivals from India. Effective measures of control were taken in each centre, and there was little or no spread of the disease.

14. *Vaccination*.—The vaccination staff of the Colony consisted of 140 trained vaccinators under the supervision of the Provincial Surgeons, and nine Inspectors of Vaccination, who are under the administrative control of the Provincial Surgeons. The total number of primary vaccinations performed was 128,795. Of these, 119,050 were successful, 2,188 not successful, and the results not determined in 7,557. The percentage of successful primary vaccinations was 98·36.

15. *Government Vaccine Establishment*.—The officer in charge reports that 418 calves were received on hire from the contractor. The number used was 411, and 398 were returned to the contractor. Seed lymph for vaccinating the calves was obtained from the Lister Institute of Preventive Medicine, London, and also from the King's Institute, Madras. A certain amount was also locally prepared. The total number of tubes of lymph issued was 139,447, as against 102,132 in 1918. Of this number, 780 were issued to the Colombo Municipality and 2,748 were sold, realizing the sum of Rs. 1,750·50. A large quantity of lymph was stored in bulk as a reserve.

16. *Enteric Fever*.—Judging from hospital returns, this disease was more prevalent and more fatal in 1919, there being 770 cases with 206 deaths, as against 614 with 131 deaths in 1918 and 518 cases with 93 deaths in 1917. The real prevalence of this disease in the Island cannot be judged from these figures, as many cases are neither recognized nor reported as such. The incidence of the disease was apparently much more marked in the latter half of the year, especially in the Western Province. The following table gives some evidence of the incidence of the disease in different Provinces as judged from hospital returns :—

Province.	1919.			1918.		
	Cases.	Deaths.		Cases.	Deaths.	
General Hospital, Colombo ..	338	..	126	..	168	..
Western Province ..	177	..	42	..	107	..
Central Province ..	160	..	17	..	85	..
Northern Province ..	53	..	3	..	21	..
Eastern Province ..	5	..	1	..	—	..
Southern Province ..	45	..	7	..	59	..
North-Western Province ..	12	..	3	..	14	..
North-Central Province ..	5	..	2	..	—	..
Province of Uva ..	20	..	2	..	8	..
Province of Sabaragamuwa ..	12	..	2	..	18	..

The great increase in the number admitted to the General Hospital, Colombo, is evidence of a severe outbreak in Colombo and its neighbourhood.

17. *Dysentery*.—A considerable increase is shown as regards hospital admissions in 1919. The number of such admissions was 4,462 with 905 deaths, as compared with 2,481 cases with 428 deaths in 1918 and 2,883 cases with 620 deaths in 1917. The increased prevalence of this disease was probably associated with the excessive rainfall this year, leading to pollution of wells and other sources of water supply.

18. *Leprosy*.—The statistics of the Leper Asylum at Hendala give the following particulars as regards 1919 :—

	Males.	Females.	Total.
Remaining on December 31, 1918 ..	297	..	375
Admitted ..	92	..	117
Died ..	37	..	57
Remained on December 31, 1919 ..	331	..	412

Of the 117 admissions, 95 were new cases, and they were classified as under as regards the type of the disease :—

Tubercular ..	..	..	..	11
Anæsthetic ..	..	..	..	44
Mixed ..	..	..	..	40

The new admissions were from the following Provinces :—Western, 63; Southern, 12; Uva, 8; Central, 7; Northern, 3; Sabaragamuwa, 2. The other admissions were re-admissions of absconders.

Discharges.—Twenty-three were returned as "discharged"; of these, 18 absconded, 1 was discharged as not suffering from leprosy, 3 Malabars were repatriated, and 1 was on leave. Of the 18 absconders, 5 were arrested and brought back, 8 returned of their own accord, and 5, including the 1 on leave, are still at large.

In addition to the asylum at Hendala, 63 lepers were treated at the Kalmunai Asylum, in the Eastern Province. Fifteen new cases were admitted, and there were 4 deaths. Eleven cases were waiting for admission.

A new asylum on Mantivu Island, near Batticaloa, is nearing completion.

19. *Anchyllostomiasis*.—The following table gives the hospital admissions as regards the different Provinces :—

Province.	Cases.	1919.	Deaths.	Cases.	1918.	Deaths.	Cases.	1917.	Deaths.
Western Province	.. 1,776	..	317	.. 6,925	..	184	.. 1,311	..	187
Central Province	.. 3,381	..	644	.. 5,837	..	413	.. 3,237	..	569
Southern Province	.. 1,086	..	126	.. 1,786	..	85	.. 666	..	98
Province of Sabaragamuwa	.. 1,362	..	192	.. 1,685	..	180	.. 1,175	..	232
North-Western Province	.. 414	..	72	.. 1,340	..	58	.. 320	..	46
Province of Uva	.. 743	..	132	.. 1,153	..	144	.. 1,123	..	217
North-Central Province	.. 74	..	6	.. 102	..	4	.. 33	..	3
Northern Province	.. 137	..	10	.. 76	..	5	.. 25	..	2
Eastern Province	.. 156	..	16	.. 284	..	9	.. 153	..	12
General Hospital, Colombo	.. 655	..	99	.. 576	..	66	.. 408	..	55
Total ..	9,784	—	1,614	—	19,764	—	1,148	—	8,451
		—	—	—	—	—	—	—	1,421

The figures given above refer to cases admitted and treated for hookworm disease, but there were amongst cases admitted for other diseases a large number suffering from anchyllostomiasis as well.

The Anchyllostomiasis Campaign.—During 1919 anchyllostomiasis campaigns were conducted in the Uva and Central Provinces, and were concluded in the Avissawella-Hanwella section. These operations covered an approximate area of 297 square miles, and embraced 228 estates, and about 30 bazaars, villages, and towns. The personnel necessary for this work consisted of 3 Field Directors, 5 Assistant Directors, 9 clerks, 13 microscopists, and 31 dispensers. During the year 88,602 persons were treated, and 69,032 of those treated were cured. Although very serious local difficulties arose, which hindered the steady progress of the campaigns, still it will be noted that there was an appreciable increase in the amount of work done as compared with previous years, as seen in the following figures :—

		Number treated.	Number cured.
Through 1917	..	..	.. 42,427
In 1918	..	..	.. 50,374
In 1919	..	..	.. 88,602
Total up to the end of 1919 ..	..	181,403	148,857

The work in the Province of Uva was under the direction of Dr. Fitzroy Keyt. The area in question included the estates, villages, and towns in and around Badulla, Passara, and Namunakula, and joined up with the districts of Haputale and Koslanda, which had been already completed in 1918. At the end of 1919 all estates in the Province of Uva which could be conveniently reached by campaign methods had had regular campaigns. A few outlying estates could not be included, because their distance from the field office was too great, and because office and living accommodation could not be secured in the neighbourhood.

Two areas were included in the Central Province : one having Gampola as a centre, and the other including the entire Dimbula section. The work in the Gampola-Pussellawa section embraced 70 estates, and 13 bazaars, villages, and towns. The greater part of the area included estates and villages on both sides of the Pussellawa road as far as Ramboda, although the territory extended to within 2 miles of Nawalapitiya in one direction, and to the 9th milestone on the Peradeniya road in another. This work was directed by Dr. S. T. Gunasekera. The Dimbula district included all estates and bazaars in the Kotagala, Talawakele, Nanu-oya, and Agrapatana sections. Work was not entirely completed in the last-named district at the end of the year. Dr. S. A. Winsor directed this work. It will thus be noted that the planting districts in the Province of Uva and in a large part of the Central Province have now been reached by regular campaigns.

The 1919 figures by areas are as follows :—

		Number treated.	Number cured.	Number Treatments given.
Badulla	..	.. 32,100	.. 28,294	.. 77,714
Dimbula	..	.. 34,194	.. 30,408	.. 78,515
Gampola	..	.. 22,308	.. 10,330	.. 54,400
Total ..	..	88,602	69,032	210,629

It does not seem possible or feasible to include very remote estates in the regular campaign programme. Distances are great, and supervision not practicable. A probable solution of this difficulty would be for those estates to employ dispensers, have them trained in campaign methods, and arrange for them to conduct the campaigns. This plan has already been followed successfully on several estates, and about 100 dispensers have been trained in the work by the Field Directors.

Two important factors contributed towards delaying the work during the year. The first was the influenza epidemic, which persisted off and on throughout the year, but which reached its climax in July, making it necessary to suspend work entirely in the Dimbula area for that month, and causing the work in all areas to be carried on at a reduced rate for long periods of time. During the latter part of the year, however, large numbers of labourers were made available for treatment, and this, together with closely grouped estates, efficient drugs, and an experienced staff, accounts for the marked increase

in the amount of work which was done. The second difficulty was the food scarcity, due to the shortage of rice and the consequent increase in price of all other food commodities. Additional supplies of rice were made available by Government for estates where campaigns were in progress, thus making it possible to proceed with the regular estate campaigns. In villages, however, where the individual had to purchase his own rice, it was not possible to carry on the work systematically as before. As a result two treatments only were given to each person in villages in the latter part of the year, and in a large majority of instances specimens were not returned for re-examination, so that the number of reported cures is very small. The difficulty in the rice situation continued throughout the year. Floods during July and September greatly hindered the work in the Gampola area.

Changes in Campaign Methods.—In view of the fact that campaign methods have been considerably modified since the work was inaugurated in Ceylon, it may be proper to mention here the changes which have occurred. No general preliminary microscopic examination is now made of estate labourers, as experiments have shown that approximately 100 per cent. of them are infected. The treatment is not so drastic as formerly; the preliminary purge has been omitted altogether, as has also the preliminary fasting; the vermifuge dose is smaller, but equally efficient; the duration of work on each estate is shorter, and the disturbance of the estate routine has been reduced to a minimum; the staff is more experienced, and much larger number can be treated daily. Not more than four series of treatments are given on estates, as it has been shown experimentally that the first two treatments should remove about 95 per cent. of the worms from each individual, and that it requires from two to six additional treatments to remove the remaining 5 per cent. Since a small percentage of infected persons are not treated for various medical reasons, it is thought that these lightly infected uncured cases will not increase the amount of re-infection. In fact, it is presumed that the latrines, if properly used, will take care of these cases.

Much educational work was done during the year in the field campaigns and in outside districts by giving lantern talks and by distributing literature. Special efforts to reach the permanent population of the Island were made by visiting and lecturing to the C. M. S. Training Colony at Peradeniya and the Government Training College, Colombo. At both these institutions lantern lectures were given in English and in the vernacular, followed by microscopic demonstrations of intestinal parasites. The entire personnel of both these schools were later examined, and those infected were treated. Even among this selected class of people the infection percentage was slightly above eighty-five.

Post-Campaign Work.—During the year post-campaign measures were conducted in the Matale District. Thirty-eight estates were reached, and 3,686 labourers were treated. In addition, 563 villagers came voluntarily for treatment. The re-infection percentage remains high, however, varying between 40 per cent. and 91 per cent. Soil pollution is still in evidence on many estates in this district, and this accounts in part for the higher infection rate. The nature of the crops grown, the elevation, and climate are also factors to be considered. It might be advisable to state here that in the villages embraced in the Matale area 3,741 latrines were constructed during the year. It is significant of increasing interest to learn that in two of the districts where regular campaigns were conducted in 1919 post-campaign work has been asked for.

Sanitation.—Before undertaking a campaign, arrangements were made by Government for one of its Inspecting Medical Officers to visit the estates in the district and advise superintendents how to prepare for the campaigns, so that the greatest benefit could be derived therefrom. Unfortunately the number of officers available for this important work was very limited, and not all estates were visited.

It is the concensus of opinion among the Field Directors who visit the estates daily during the year that progress in the improvement of sanitary conditions of lines and latrines on estates has been made, especially in comparison with the situation when anti-anchylostomiasis operations began in 1916. All agree that upon the whole the latrine provision is adequate, but, on the other hand, say that many of the latrines are unused or improperly used, and in some instances have deteriorated to such an extent that they are not usable. It appears, therefore, that much additional work can be done advantageously in this respect. It is a noticeable fact that on estates where the superintendents are keen on sanitation, the paths and line surroundings are not polluted, and that the latrines are properly used. It has to be noted also that coolies on well-sanitized estates are healthier, that they are cured of ancylostomiasis more quickly, that the re-infection percentage is lower, and that the mortality from prevailing epidemics was very much less.

In villages where ancylostomiasis work was undertaken, an increased number of latrines was built and sanitary conditions generally improved. Prior to beginning work an Inspector was furnished by Government, who lectured to the people, and visited them and instructed them in the building, maintenance, and use of latrines. In this connection it might be well to note the present situation in Porto Rico, where treatments for ancylostomiasis were given about fifteen years ago by Government officers especially delegated for the work. A staff member of the International Health Board, who has just returned from a visit to Porto Rico, writes: "The experience in Porto Rico again makes concrete proof that our policy is sound in not encouraging hookworm measures, unless soil sanitation has been carried out at least six months in advance, and unless arrangements have been made by Government for maintenance and inspection to see that latrines are properly used. Although Porto Rico has a population of approximately one million, and has already spent \$347,000 on hookworm control, we found an infection rate of over 90 per cent. in 2,000 examinations at various test points among the rural population. Fully 80 per cent. of the houses have no latrines. The trouble is that all the money was spent on relief measures, and very little effective sanitation was accomplished."

It is undoubtedly true that a long stride in the right direction was taken in sanitary matters in Ceylon by the erection of latrines on estates and in villages. If the ground gained thereby is not to be lost, it is necessary that these latrines, which were built at a considerable cost, should be used in a proper manner. It is probable that an increased number of competent inspectors, who will act in an advisory capacity and enforce regulations, might furnish a means for meeting the situation.

20. *Diphtheria.*—Only 4 cases were treated in Government hospitals, and of these, 3 died.

21. *Parangi (Framboesia, or Yaws).*—As in 1918 and 1917, over 5,000 cases were treated in Government hospitals and dispensaries. Of the 5,270 cases treated in 1919, some 23 died. The distribution of the disease judged from hospital returns is shown in the table annexed :—

	1919.	1918.	1917.
Western Province ..	439 ..	318 ..	241
Central Province ..	673 ..	926 ..	1,337
Northern Province ..	168 ..	141 ..	123
Southern Province ..	725 ..	377 ..	240
Eastern Province ..	470 ..	502 ..	517
North-Western Province ..	712 ..	1,002 ..	948
North-Central Province ..	455 ..	455 ..	512
Province of Sabaragamuwa ..	748 ..	669 ..	695
Province of Uva ..	760 ..	704 ..	616
General Hospital, Colombo ..	120 ..	117 ..	130
Total ..	5,270	5,211	5,359

Apart from the hospital admissions, large numbers were treated at various dispensaries in the different Provinces. Special arrangements for intravenous medication in the way of treatment of this disease were made at various hospitals in the Provinces where the disease was rife.

22. *Cancer and Sarcoma.*—The number of cases of malignant tumours treated in the various hospitals was 401, of which 71 died. More than half of these cases were treated in the General Hospital.

23. *Tubercular Disease of the Lungs (Pulmonary Phthisis).*—The number of these cases under treatment in the various Government hospitals during 1919 was 2,656 with 801 deaths, as compared with 2,781 cases and 615 deaths in 1918 and 1,862 cases with 569 deaths in 1917. The provincial distribution was as under :—

	Cases.	Deaths.		Cases.	Deaths.
Western Province ..	1,175 ..	224	North-Central Province ..	21 ..	5
Central Province ..	192 ..	58	Province of Uva ..	136 ..	44
Northern Province ..	60 ..	8	Province of Sabaragamuwa ..	100 ..	28
Eastern Province ..	72 ..	11	General Hospital, Colombo ..	576 ..	282
Southern Province ..	164 ..	47	Lunatic Asylum, Colombo ..	63 ..	57
North-Western Province ..	97 ..	37			

Incidentally it may be mentioned that tubercular disease of joints, bones, and glands, which is so prevalent amongst children in temperate climates, is comparatively rare in Ceylon, as in other tropical and sub-tropical countries. This lends strong support to the view that this form of the disease is largely due to infection from the milk of tubercular cows, for this disease (tuberculosis) is very rare in cattle in tropical countries.

Apart from the treatment of cases of phthisis in various general hospitals, three separate institutions are specially provided for dealing with this scourge, viz., the Anti-Tuberculosis Institute in Colombo, a sanatorium for early cases at Kandana some 7 miles out of town, and a hospital for chronic cases at Ragama some 11 miles away. At the dispensary in Colombo the cases are recognized, and suitable early cases sent to Kandana and chronic cases sent to Ragama. Apart from this, treatment and advice are given and domiciliary visits are carried out by the dispensary staff.

At the Institute there were 3,321 attendances in 1919, of which 1,588 were first visits. The number of cases of phthisis amongst these registered 930, the other 558 being sufferers from various chest troubles, of which asthma was the chief. The number of Colombo cases registered as phthisis was 593. No fewer than 278 deaths occurred from phthisis in Colombo not certified as such by a qualified medical man. They must have been a fruitful source of infection to others. Over 1,000 cases of deaths from phthisis occurred in Ceylon in 1919, and the number of people suffering from this disease in the Island must be over 10,000. Further efforts are, therefore, necessary to give skilled medical aid to numbers apparently not provided with such.

From the Institute in Colombo 653 cases of chronic phthisis were sent to Ragama hospital and 162 were sent to Kandana sanatorium. Some 329 domiciliary first visits to patients in their homes were made by the dispensary staff. At Ragama there were 900 cases under treatment in 1919, and of these, 155 died; the daily average sick was 152·32. Further accommodation to the extent of another 100 beds is urgently required at that hospital for this class of cases, many of which have to be kept in the General Hospital, Colombo, for want of room at Ragama.

To the sanatorium at Kandana, which was opened in the early part of the year, 161 cases were admitted; of these, 120 were discharged, 41 remained at the end of the year, and none died. Further accommodation there is also needed for suitable cases affording good hopes of recovery.

24. *Port Health Precautions, Colombo.*—In 1919 a total of 2,791 British and foreign steamers and 316 native sailing craft called at this port and were duly inspected, as against 1,661 steamers and 406 sailing vessels in 1918. Of these, 31 were placed in strict quarantine, as against 5 in 1918 and 8 in 1917. Eighteen were dealt with on account of smallpox, 6 on account of plague, and 4 on account of cholera, and 1 on account of cerebral spinal meningitis. Minor infectious diseases, such as measles, mumps, and chickenpox, were also dealt with by the Port Surgeon and his staff.

Disinfection and Vaccination.—The following numbers were dealt with at the disinfecting station on the Breakwater :—

(a) Disinfection : Passengers, 45,971 ; cargo coolies, 47,946 ; coal coolies, 43,802 ; and tally clerks, 2,999.

(b) Vaccination : 25 persons.

Fumigation : Cargo lighters were regularly fumigated, and rat destruction systematically carried out. Several ships were disinfected before being docked.

The tanks of water boats were periodically cleaned and disinfected.

There were 361 prosecutions for breach of quarantine regulations.

SECTION III.—METEOROLOGICAL CONDITIONS.

25. *Rainfall.*—For the Island generally the rainfall for the year was above the average, being especially so south-west of the hills and in the Northern Province. It was in deficit, however, at most places on the east side of the Island to a somewhat less extent in the south and in the Matale District. The largest fall recorded for the year was in the Nawalapitiya District. Here, at Strathellie estate, altitude 2,500 feet, rain falling on 251 days, totalled 239·43 inches. The least rainfall was experienced in the east at Naula, near Arugam Bay, which had a total for the year of 24·56 inches in 60 days. The longest drought occurred at Elephant Pass and lasted for 117 days, May 15 to September 8. Thunderstorms were, on the whole, more numerous, being possibly due to the greater heat of the early months of the year ; but the consequent precipitation was less than is usually experienced.

Temperature.—During January and February the mean shade temperature was decidedly higher than usual, and being immediately followed by months in which the temperature is normally high in the more populous parts of the Island, this had the effect of prolonging the hot season, and thereby making it more trying. For the remainder of the year the temperature was about normal, which resulted in the mean for the year being, on the whole, but slightly above the average.

Wind.—To the extreme north and south the wind strength was above the average, but was mostly below for the remainder of the Island. In direction there was no great variation from normal.

Air Pressure.—For the year the air pressure was above normal, being especially high in March and August and high in the remaining months, except November and December, when it was about normal.

SECTION IV.—THE SANITARY BRANCH OF THE MEDICAL DEPARTMENT.

26. *Staff of the Sanitary Branch.*—Senior Sanitary Officer, Acting Junior Sanitary Officer, 3 Assistant Sanitary Officers, Sanitary Engineer, Sanitary Superintendent, 71 Sanitary Inspectors, 8 disinfecting orderlies, 4 surveying coolies, and 4 rat-catching coolies. Of the 2 Sanitary Inspectors who joined the Mesopotamia Sanitary Corps, one returned to the Island and resumed duties in the Department, and the other has secured a temporary post in Mesopotamia on extension of leave. A substitute has been appointed to act for him. Two Sanitary Inspectors resigned. The Senior Sanitary Officer who was on leave from December 26, 1918, returned to the Island on October 30, 1919, and relieved Dr. G. S. van Rooyen, who was acting for him.

Transfers.—Dr. K. R. Perera, Acting Assistant Sanitary Officer, Western Province, to Matale, relieved Dr. M. de Costa, Matale, to Colombo.

27. *Summary of Work.*—120,847 premises were inspected during the year, of which 19,312 were found insanitary. 4,087 actual mosquito breeding places were discovered and dealt with. There were 2,173 prosecutions with 1,818 convictions in respect of breaches of sanitary rules and regulations, the fines amounting to Rs. 6,536·75. 6,813 notices were served for remedying sanitary defects, out of which 4,995 were voluntarily complied with.

28. *New or Re-constructed Buildings.*—2,173 applications were dealt with, and 1,062 new buildings have been constructed in the Sanitary Board towns of Western and Central Provinces during the year.

29. *Infectious Diseases.*—The following infectious diseases were reported and prophylaxis carried out :—

Enteric fever ..	245	Measles ..	34
Dysentery ..	234	Smallpox ..	1
Chickenpox ..	381		

Cholera.—Only one case of cholera occurred in Colombo District in the person of a Tamil employed at the Kolonnawa Oil Installation Works. Three epidemic outbreaks occurred during the year, i.e., (a) Hambantota and the neighbouring villages, (b) Province of Uva, and (c) Tissamaharama.

Cholera Epidemic at Hambantota.—This occurred in July at Hambantota and neighbouring villages. The origin of the outbreak was traced to one of the employees of a travelling circus which had recently come from India. The Acting Senior Sanitary Officer, Acting Junior Sanitary Officer, Assistant Sanitary Officer, Central Province, and fourteen Sanitary Inspectors were in charge of this epidemic, which was finally got under control and the area declared free from cholera in August, 1919. The total number of cases 447 ; deaths 348.

Epidemic at Province of Uva.—This epidemic, which occurred during October, continued till the beginning of January, 1920. Origin of the epidemic could not be traced. Dr. G. S. van Rooyen, the Assistant Sanitary Officer, Central Province, and twelve Sanitary Inspectors were in charge of this epidemic. 170 cases occurred, with 120 deaths.

Epidemic at Tissamaharama.—A third outbreak occurred at Tissamaharama during November, the origin of which was traced to a Moorish cultivator from Batticaloa, who passed through Buttala, then a cholera-infected area, on his way to Tissamaharama. The Senior Sanitary Officer, Acting Junior Sanitary Officer, and Dr. Arulpragasam, with four Sanitary Inspectors, were in charge of this epidemic, and the area was declared free from cholera at the end of December, 1919. Total number of cases 26, with 20 deaths.

With the exception of a sharp outbreak at Migahakiula during the Uva epidemic, which pointed to a water infection, all the other cases could be attributed to contact infection.

Sporadic cases of influenza prevailed throughout the Island, and prophylactic measures in the shape of advice, distribution of disinfectants, food, and pecuniary help were rendered by the Sanitary Inspectors in co-operation with the local police headmen.

30. *Sanitary Conveniences.*—Three public latrines of an approved type were constructed at Government expense in the Sanitary Board towns of Peliyagoda, Nugegoda, and Beruwala. The following are the figures for private latrines installed in other areas :—

Western Province ..	10,185	Central Province ..	13,223
Southern Province ..	23,515	Matale District ..	3,741

31. *Hookworm Disease.*—A communal treatment was commenced by Dr. M. de Costa at Weligama during May, and he treated 100 cases. The work was handed over to Dr. W. S. Fernando of the Anchylostomiasis Campaign and continued for a month, but had to be given up owing to the rice crisis. The following are the results of treatment in other areas :—

Post-hookworm Campaign, Matale : 3,686 coolies were treated, with 2,117 cures.
Hookworm Dispensaries at—

Kalutara : 1,850 patients were treated, with 1,295 cures.

Moratuwa : 762 patients were treated, with 161 cures.

At the request of the Medical Officer of Health, Colombo, 1,284 specimens of excrement from the pupils of the various colleges and the residents within Municipal limits were microscopically examined for hookworm infection, of which 575 were found positive.

In view of the extension of the hookworm campaign into Kandy District, 16 lantern lectures on elementary sanitation and hookworm disease were delivered in Udunuwara, Yatinuwara, Tumpane, and Harispattu during November and December, 1919.

32. *Domestic Water Supplies.*—15,919 wells were inspected during the current year, of which 8,964 were found protected from pollution ; 577 were improved ; 83 new wells were sunk. Three public wells were provided at Government expense at Peliyagoda, Nugegoda, and Matugama. Five samples of water were examined chemically and bacteriologically, of which three were found satisfactory, and two unfit for human consumption.

33. *Scavenging.*—Scavenging of public and domestic refuse is being carried out in all the Board towns of the Island, with the exception of few that have not yet accumulated sufficient funds for the employment of coolies.

34. *Licensed Trades.*—These are gradually being made to conform to the rules and regulations effecting them.

35. *Milk Supply.*—108 samples of milk were examined chemically by the Government Analyst at our request, of which 81 were found adulterated, 4 skimmed, 2 fat removed, and 21 genuine.

36. *Town Planning.*—Surveys and improvement schemes are being carried out at Wellampitiya, Mitotamulla, Kirillapone, Kalubowila, Katukurunda, Gorakapola, Homagama, Radawana, Hanwella, Kesbewa, Negombo, Kelaniya, and Kandana. Type plans of estate cooly lines, bakeries, and boutiques were drawn up during the year.

SECTION V.—GENERAL.

37. *Hospitals, Asylums, and Dispensaries.*—Besides the Lunatic Asylum, Colombo, the Leper Asylum, Hendala, which have accommodation for 520 and 419 patients, respectively, there existed in 1919 87 Government hospitals, with accommodation varying from 12 beds in smaller outstations to 687 beds in the General Hospital, Colombo. At 58 hospitals, besides a medical officer or officers, a matron and nurses are also provided.

The following new buildings were completed during the year :—

- (1) Hospital in the Agrapatana.
- (2) Quarters for the visiting apothecary, Dolosbage hospital.
- (3) Quarters for Medical Officer and operating room, Nawalapitiya.
- (4) Dispensary and Medical Officer's quarters, Kattankudi.
- (5) Tanamalwila dispensary.
- (6) New stables and coach house to quarters to District Medical Officer and District Medical Assistant, Balangoda hospital, and also latrines for attendants and servants.
- (7) Additional accommodation, Galle hospital.
- (8) Smallpox hospital, Mandapam.
- (9) Quarters for visiting apothecary, second apothecary, and steward, Karawanella hospital.

38. The following is a summary of the chief features of the report of the Medical Superintendent of the General Hospital, Colombo :—

On December 31, 1918, there were 580 patients left in hospital, 51 in the paying section and 529 in the non-paying section. During 1919 the total number of admissions was 14,291 ; of these, 975 were admitted to the paying wards, and 13,316 to the non-paying wards. Of the 1,026 under treatment in the paying wards, 912 were discharged, 69 died, and 45 remained on December 31, 1919. Of the 13,845 under treatment in the non-paying wards, 11,520 were discharged, 1,732 died, and 593 remained on December 31, 1919. The average daily sick in hospital was 51·15 in the paying wards and 717·15 in the non-paying wards, most of which were overcrowded during the greater part of the year.

The maximum and minimum numbers on any one day are shown as under :—

Non-Paying Section.

Maximum : 813 on December 4, 1919.
Minimum : 596 on July 8, 1919.

Paying Section.

Maximum : 61 on July 11, 1919.
Minimum : 37 on December 26, 1919.

Of the 13,316 cases admitted to the non-paying wards, 5,690 were surgical cases and 7,626 were medical cases. The admissions to these wards were over 3,000 more than in 1918.

The number of surgical operations performed in 1919 was 2,312 (exclusive of minor operations performed in the Out-patient Department), as compared with 1,829 in 1918. Of the 2,312 operations, 272 were done in the paying section theatre. The following table gives a comparison with the past five years as regards the number of cases under treatment, daily average sick, and percentage mortality in the paying and non-paying sections, respectively :—

	PAYING SECTION.					NON-PAYING SECTION.					
	Cases under Treatment.	Deaths.	Percentage Mortality.	Daily Sick.	Average Sick.	Cases under Treatment.	Deaths.	Percentage Mortality.	Daily Sick.	Average Sick.	
1915	..	907	..	65	..	5·3	..	40·94	..	10,703	..
1916	..	909	..	63	..	6·9	..	41·18	..	12,310	..
1917	..	814	..	35	..	4·2	..	41·30	..	12,136	..
1918	..	913	..	60	..	6·5	..	43·18	..	10,698	..
1919	..	1,026	..	69	..	6·7	..	51·15	..	13,845	..

As regards particular diseases, the following table shows their comparative prevalence and fatality as indicated by hospital returns:—

	1915. Cases.	1916. Cases.	1916. Deaths.	1917. Cases.	1917. Deaths.	1918. Cases.	1918. Deaths.	1919. Cases.	1919. Deaths.
Acute pneumonia	226 ..	104 ..	357 ..	177 ..	358 ..	136 ..	1,176 ..	389* ..	605 ..
Pulmonary phthisis	471 ..	234 ..	581 ..	276 ..	319 ..	178 ..	569 ..	207 ..	— ..
Anchylostomiasis	315 ..	36 ..	360 ..	49 ..	408 ..	55 ..	576 ..	66 ..	655 ..
Malaria	.. 1,118 ..	5 ..	977 ..	11 ..	764 ..	15 ..	535 ..	13 ..	849 ..
Dysentery	.. 231 ..	36 ..	268 ..	45 ..	222 ..	29 ..	138 ..	29 ..	286 ..
Enteritis and diarrhoea	376 ..	136 ..	426 ..	156 ..	409 ..	112 ..	312 ..	64 ..	475 ..
Enteric fever	.. 186 ..	50 ..	261 ..	83 ..	174 ..	42 ..	163 ..	53 ..	338 ..
Appendicitis	.. 132 ..	4 ..	117 ..	4 ..	144 ..	2 ..	110 ..	6 ..	170 ..

* Includes influenzal pneumonia.

The new paying section of the hospital has been overcrowded during the greater part of the year. It is hoped that relief in the near future will be arranged for by additions to the Chronic Hospital for Tuberculosis cases at Ragama and additions to the Home for Incurables. There are some 150 cases of these classes in the General Hospital who ought to be dealt with elsewhere. A new ward of 24 beds for females is being erected, and will be most useful as the accommodation for females is inadequate.

The paying section, too, has been taxed to its utmost during the past year, and especially has a shortage of accommodation been felt in that provided for merchant seamen. Fortunately, as part of the great war memorial, it has been decided to provide more beds for this class of patient. The cost of this scheme is to be met out of a generous grant of £7,500 from the Red Cross Society and of Rs. 50,000 from public funds.

Expenditure and Receipts.—Paying Section : Receipts, Rs. 84,513 ; expenditure, Rs. 53,410 ; Non-Paying Section : Receipts, Rs. 4,682 ; expenditure, Rs. 104,536. The expenditure in both sections covers the cost of diets, fuel and light, and equipment, and the salaries of attendants and servants, but does not include the salaries of the medical and nursing staff, nor the cost of drugs and dressings.

Staff.—The senior members of the staff continued to carry out their duties in the same efficient fashion. The Medical Superintendent, Dr. G. Thornton, who had been in charge for the past eleven years, was called upon to act as Principal Civil Medical Officer in September, and Dr. P. J. Kelly, Registrar of the Medical College, acted as Superintendent of the Hospital the rest of the year.

39. *The Colombo Lunatic Asylum.*—As usual, there has been a serious shortage of accommodation with consequent overcrowding. The new asylum at Angoda is under construction, and it is hoped that the wards for females may be ready there by the end of 1921. As a measure of temporary relief, arrangements have been made to treat 150 male cases in the abandoned jail at Matara. The following table gives the figures regarding the numbers dealt with in 1919 as regards the Asylum in Colombo :—

	Males.	Females.	Total.
Remaining on December 31, 1918	.. 690 ..	376 ..	1,066
Admitted	.. 229 ..	131 ..	460
Total treated	.. 919 ..	507 ..	1,426
Discharged	.. 138 ..	53 ..	191
Deaths	.. 105 ..	61 ..	166
Remaining on December 31, 1919	.. 676 ..	393 ..	1,069

The daily average number resident in the Asylum was 690·46 males and 381·26 females, as compared with 682·53 males and 363·67 females in 1918. The largest number present on any one day was 1,118, of which 716 were males and 402 females. Useful work was done for various Government Departments by both male and female inmates.

40. *The House of Observation.*—Twenty-six males and 12 females were under observation on January 1, 1919, as compared with 15 males and 6 females on January 1, 1918. During 1919 the number of males dealt with was 267 and the number of females 111, as compared with 267 males and 11 females in 1918. Of the 275 males 123 and of the 119 females 67 were transferred to the Asylum, 132 males and 40 females were discharged, and 12 males and 9 females remained on December 31, 1919.

41. *The Infectious Diseases Hospital, Colombo.*—Cases were admitted from Colombo and environs and from ships arriving at the harbour. On December 31, 1918, there were 15 cases left in hospital ; during 1919 there were 437 cases admitted ; of the 452 under treatment, 404 were discharged, 30 died, and 18 remained on December 31, 1919. The daily average sick was 20·40. The cases dealt with are shown in the table given below :—

Disease.	Number.	1919.		1918.		1917.	
		Deaths.	Number.	Deaths.	Number.	Deaths.	Number.
Smallpox	.. 28 ..	6 ..	46 ..	10 ..	5 ..	2 ..	— ..
Cholera	.. 10 ..	— ..	1 ..	— ..	— ..	— ..	— ..
Plague	.. 24 ..	17 ..	10 ..	9 ..	77 ..	58 ..	— ..
Diphtheria	.. 1 ..	— ..	4 ..	2 ..	7 ..	2 ..	— ..
Chickenpox	.. 278 ..	— ..	351 ..	1 ..	506 ..	1 ..	— ..
Measles	.. 84 ..	2 ..	18 ..	1 ..	156 ..	1 ..	— ..
Mumps	.. 38 ..	1 ..	15 ..	— ..	22 ..	— ..	— ..
Pneumonia	.. — ..	— ..	3 ..	1 ..	5 ..	2 ..	— ..
Acute diarrhoea	.. 3 ..	1 ..	2 ..	— ..	5 ..	— ..	— ..
Other diseases :—							
Whooping cough	.. 4 ..	— ..	— ..	— ..	— ..	— ..	— ..
Influenza	.. 11 ..	2 ..	— ..	— ..	— ..	— ..	— ..
Malaria	.. 2 ..	— ..	61 ..	1 ..	58 ..	— ..	— ..
Enteric	.. 1 ..	— ..	— ..	— ..	— ..	— ..	— ..
Total	.. 484 ..	29 ..	511 ..	25 ..	841 ..	66 ..	— ..

No start has yet been made on the construction of a new and up-to-date infectious diseases hospital, which is really required, but it is hoped to do so next year.

42. *The Victoria Memorial Eye Hospital.*—909 patients were admitted during the year, and the average daily sick was 68·89. The number of operations performed was 562, of which 198 were for cataract and 40 for glaucoma. At the Out-patient Department 9,774 eye cases and 1,753 ear, nose, and throat cases were attended to, and in both classes some 1,126 minor operations performed.

43. *The Convict Hospitals* consists of the Borella Convict Hospital, Colombo, Welikada Hospital for females, and the Mahara Jail Hospital, and there are hospitals attached to the jails at the other sixteen jails. The total number of admissions to all the jail hospitals was 10,267, as against 6,101 in 1918 and 6,879 in 1917; and the number of deaths was 315, as against 121 in 1918 and 131 in 1917. The majority of the cases were under treatment at Borella and Mahara, as 3,193 were admitted to Borella hospital and 4,421 to Mahara hospital. At Borella 1,191 cases and at Mahara 2,000 cases were admitted for influenza, the disease being much more prevalent amongst prisoners than was the case in 1918. Owing to food shortage and high prices many prisoners were in poor health on admission, and more cases required hospital treatment than usual.

44. *The Police Hospital, Borella.*—The number of in-patients was 1,111, and the daily average sick 17·49 and 8 died.

45. *The De Soysa Lying-in Home.*—The total number treated in 1919 was 1,950, as compared with 1,749 in 1918 and 1,739 in 1917. Of these, 1,803 were discharged, 82 died, and 47 remained on December 31, 1919, and 18 were transferred to the general or some special hospital. The percentage of deaths was 4·20, as against 4·97 in 1910. Of the 82 deaths, 37 were due to the accidents of child-birth, and 9 were due to puerperal causes and 36 to non-puerperal, such as ancylostomiasis, pneumonia, &c. During the period under review 1,554 children were born, and there were 35 cases of twins and one of triplets. There were 149 stillbirths. Of the children born alive, 90 died. The number of paying patients was 58, a decrease in numbers due to rebuilding operations. The front one-storied block was pulled down and a two-storey block erected on the site, which will be opened very shortly, and provide much-needed additional accommodation. The hospital serves as a training school both for medical students and midwives. The number of pupil midwives received for training during the year was 62, and of these, 55 successfully passed their examination and received certificates. In July Dr. M. Sinnetamby, who had been in charge of the hospital since 1899, retired after thirty-seven years of highly meritorious service. 176 obstetric operations were performed.

46. *Lady Havelock Hospital for Women.*—The number of cases treated was 831, as compared with 849 in 1918 and 868 in 1917; the daily average sick was 26·37. The number of operations performed by Miss (Dr.) Anderson, the Surgeon in Charge, was 322 (226 major and 56 minor). They were mostly gynaecological operations. The hospital trained pupil nurses, of whom 33 were admitted during the year.

47. *Lady Ridgeway Block for Children.*—The number of young children treated in 1919 was 415, as compared with 920 in 1918 and 757 in 1917, and the daily average sick was 50·03. The mortality was heavy, 26·2 per cent., but many cases unfortunately are admitted in a moribund condition. Miss Anderson comments on the universal infection of the children admitted with worms, and records cases of actual obstruction and perforation of the bowels from this cause, round worms being found freely in the peritoneal cavity. This emphasizes the necessity for periodical treatment of all children in the East for worms.

48. *Victoria Home for Incurables.*—Seventy-four patients remained in the institution on December 31, 1918, and 30 were admitted during 1919, making a total of 104 cases, of whom 9 died and 8 were discharged, leaving 87 at the Home at the end of the year. It is hoped that a start will be made before Christmas, 1920, in enlarging this Home with a view of providing accommodation for another 100 patients, thus relieving the pressure on the hospitals to that extent.

49. *Bacteriological Institute.*—The Director, Dr. L. Nicholls, reports that 5,928 bacteriological examinations were made, as compared with 4,525 in 1918. The fees received for private cases amount to Rs. 1,423.

50. At the Pasteur Institute 522 cases were under treatment; of these, 2 died. The fees received from paying and estate patients was Rs. 3,267. The brains of 160 dogs were received for examination, and of these, 90 gave a positive result.

51. *The Ceylon Medical College.*—The following are the statistics of the Medical College :—

(1) Number of Medical Students on December 31, 1918	..	187	(4) Number of Medical Students who left in 1919	..	..	3
Number of Apothecary Students on December 31, 1918	..	78	Number of Apothecary Students who left in 1919	..	..	1
(2) Number of Medical Students admitted in 1919	..	42	(5) Revenue from October 1, 1918, to July 1, 1919, Rs. 41,469·50.	..	..
Number of Apothecary Students admitted in 1919	..	31	(6) Expenditure from October 1, 1918, to July 31, 1919, Rs. 76,628·74.	..	..
(3) Number of Medical Students who passed out in 1919	..	21				
Number of Apothecary Students who passed out in 1919	..	26				

52. *Civil Medical Stores, Colombo.*—Considerable difficulty was experienced in getting out supplies of drugs and instruments from England, and prices continued very high. The cost of articles obtained in 1919 amounted to Rs. 750,408, and the cost of transport of supplies to civil and estate institutions amounted to Rs. 4,166; incidental expenditure, including stationery, printed forms, binding, &c., amounted to Rs. 15,139. The total expenditure, apart from the purchase of quinine, therefore, was Rs. 769,713. The sum of Rs. 3,250 was realized by the sale of drugs to estates, the sale of unserviceable articles, and the value recovered for loss or damage of articles issued to hospitals. The supply of quinine received during the year was 102,500 ounces, costing Rs. 288,292, and the issues amounted to 109,156 ounces, of value Rs. 307,008. Drugs to the value of Rs. 30,249 were supplied free to Government Departments other than medical. Opium to the value of Rs. 262,903 was purchased.

SECTION VI.—MEDICAL AID TO IMMIGRANT COOLIES.

53. During the year under review the Mandapam Emigration Dépôt was under the superintendence of Dr. Donald Schokman up to August, 1919, and after that Colonel van Langenberg took charge. In 1919 165,555 persons passed through the camp, as compared with 85,441 in the previous year. Of these, 112,195 were estate labourers, as compared with 44,010 in 1918. The rest were miscellaneous passengers. The enormous increase over the figures of the previous year is due partly to the withdrawal of the restriction on recruiting by the Madras Government, and partly to the dearth of foodstuffs in

India. The total number who returned from Ceylon was 108,362. Various additions and improvements have been effected to the camp since 1918, such as construction of quarters for Public Works Department clerks and menials, a cholera hospital, the erection of three temporary cooly wards, and six sheds as segregation wards to meet the large number passing through the camp during May, June, and July. Further additions and improvements await the sanction of Government. The water supply to the camp runs short of requirements during the hot season from April to July, and proposals are before the Government for its improvement. The sanitary arrangements of the camp, although satisfactory and favourably commented upon, are still open to improvement. The staff consists of two overseers with maistries, latrine coolies, and sweepers. The services of a Supervisory Sanitary Inspector are thought necessary, and the appointment of one has been recommended by the Superintendent.

No cases of plague occurred in the camp during the year. There was an outbreak of cholera in May, which continued during June and July, there being 31 cases, with 29 deaths; 27 cases occurred among estate coolies, 1 was a passenger, and 3 were members of the camp staff. There were 26 cases of smallpox with 1 death, 25 among estate coolies and 1 among miscellaneous passengers. There were 108 cases of influenza uncomplicated and 110 cases complicated with pneumonia admitted into hospital; among these there were 64 deaths, all due to pneumonia. At the outdoor department 685 cases were treated, the grand total being 795. There were also 26 cases of chickenpox, 15 cases of measles, and 6 cases of mumps, all of which recovered under treatment. The total number treated as outdoor patients was 13,189. The death-rate during the year was low, as there were only 119 deaths. There were 26 births in the camp.

54. *Government District Hospitals in Planting Areas.*—There are 51 such hospitals, with accommodation for 4,087 patients. These hospitals are staffed with fully qualified medical officers, nurses, and attendants, and are up to date in equipment. In addition to the out-patients' departments attached to these hospitals, there are 74 outdoor dispensaries unconnected with hospitals.

55. *Estate (Rebate) Hospitals.*—Fifty-one hospitals built, staffed, and equipped by estates exist in the planting districts. These hospitals have earned the sum of Rs. 61,660 in rebate of taxation in respect of the financial year 1918–19, each in proportion to the efficiency of the provisions for the medical care of their labour force. It is satisfactory to report that most of the hospitals show advance in the nature of building and equipment. It is regrettable, however, that the professional attainments of the average estate dispenser are not commensurate with the aims and objects of these useful institutions. This matter is receiving consideration with a view to improvement. The class of men seeking service or in service as estate dispensers is in many cases not satisfactory, and it is not easy to see what can be done under existing limitations. The position may be summed up in the sentence "there is no short road to medical knowledge," and the position can only really be satisfactorily dealt with by a large increase in the number of medical officers doing estate work.

56. *Free Grants of Drugs* to 460 dispensaries were made during the year October 1, 1918, to September 30, 1919, at a cost of Rs. 143,914·57.

57. *Latrines on Estates.*—Practically all estates have made provision in the way of latrine accommodation for their labour force. It would appear, however, that in numerous instances the state of repair of these conveniences has been overlooked. Soil pollution, though less than it was, continues to occur, and nothing short of continuous and systematic vigilance on the part of the estate management will effect an improvement in this matter. The gravity of neglect is not yet fully appreciated.

58. Two special officers are engaged in the duties of sanitary inspection of estates, the present sphere of their activities being (a) the Western Province, comprising the Kalutara, Panadure, Padukka, Avissawella, and Negombo districts; (b) the Southern Province, comprising the Elpitiya, Udugama, and Deniyaya districts; (c) the Central Province, comprising the Nuwara Eliya, Dikoya, Dimbula, Kandy, Matale, and Hewaheta districts, &c. 176 estates have been visited and reported upon during the year. Sanitary shortcomings and requirements were brought to the attention of the estate management, and a report forwarded to this office. Progressive improvement, I am pleased to note, is evident on a good many estates with regard to the matter of cooly health, sanitation, and welfare, but on the other estates, hampered perhaps by adverse financial considerations or by the apathetic attitude of those responsible for supervision, conditions were still far from satisfactory. It is to be hoped that the greater responsibilities to be thrown upon superintendents under the new labour legislation will have the effect of directing more attention to details of sanitation on estates. Many estates have constructed useful and serviceable "crèches" for the tending and dieting of infants and young children. The "crèche" is an entirely voluntary and philanthropic effort on the part of the estates, and is to be recommended as worthy of more general adoption, in view of the fact that the estate utilizes the services of both parents for several hours daily to the detriment of the children to a greater or less extent common to all industries where female labour is employed. Some of the "crèches" have shown excellent results in the better health and physical condition of the children.

SECTION VII.—REVENUE AND EXPENDITURE, 1918–19.

59. The following statement shows the expenditure and receipts of the Department, inclusive of Medical Aid, Estates Branch, for the financial year 1918–19:—

<i>Expenditure.</i>	Rs.	c.	<i>Revenue.</i>	Rs.	c.
Personal emoluments ..	1,700,670	58	Hospital and dispensary receipts ..	157,723	3
Other charges ..	1,506,995	93	Sale of drugs, &c. ..	2,937	34
Hospitals and dispensaries ..	1,235,325	27	Sale of drugs under Medical Wants Ordinance ..	7,733	16
			Medical aid dues, maintenance, and visits ..		
Total ..	2,742,321	20	Rent of buildings, sale of unservice- able and superfluous articles, and rent of trees and garden produce..	166,756	52
Grand Total ..	4,442,991	78		20,954	24
				356,104	29

60. *Strength of the Medical Department.*—The following was the strength of the Medical Department during the period : 1 Principal Civil Medical Officer ; 1 Assistant Principal Civil Medical Officer ; 1 Accountant ; 2 Inspecting Medical Officers ; 4 Medical Superintendents at the General Hospital, Colombo, Lunatic Asylum, Leper Asylum, and the De Soysa Lying-in Home ; 9 Provincial Surgeons ; 1 Medical Officer, Anti-Tuberculosis Institute ; 179 Medical Officers, including the Medical Superintendent, De Soysa Lying-in Home ; 2 Anæsthetists ; 1 Female Medical Practitioner ; 324 Apothecaries ; 9 Inspectors of Vaccination ; 140 Vaccinators, including 7 Female Vaccinators ; 1 Hospital Assistant ; 37 Hospital Stewards ; 1 Director, Bacteriological Institute ; 1 Bacteriologist and 1 Assistant (a Medical Officer) ; 1 Superintendent, Civil Medical Stores ; 1 Assistant Superintendent ; 1 Senior Sanitary Officer ; 1 Junior Sanitary Officer ; 5 Assistant Sanitary Officers ; 1 Sanitary Engineer ; 1 Sanitary Superintendent ; 73 Sanitary Inspectors ; 32 European Matrons and Trained Nurses ; 64 European Religious Sisters ; 232 Ceylonese Matrons, Nurses, and Pupil Nurses ; 2 Pay Agents ; 1 Opium Storekeeper ; 40 Opium Clerks and Sellers.

61. *Officers on Leave.*—I proceeded on leave in May, and Dr. E. Langley Hunt, C.M.G., Assistant Principal Civil Medical Officer, acted as Principal Civil Medical Officer and Inspector-General of Hospitals till he left on leave in September on being appointed Superintending Medical Officer of Jamaica, Dr. G. Thornton, M.D., Medical Superintendent, General Hospital, Colombo, acted as Principal Civil Medical Officer and Inspector-General of Hospitals from September till my return in December. Dr. J. Lunn, Inspecting Medical Officer, on his return from war service, was appointed to act as Assistant Principal Civil Medical Officer, but shortly afterwards proceeded to Mauritius as Director of the Medical Services in that Colony. On my return from leave, Dr. Thornton was appointed as Acting Assistant Principal Civil Medical Officer and Inspector-General of Hospitals.

62. *Changes in the Department.*—Two vacancies occurred in the Provincial Surgeon Grade, owing to the promotion of Dr. H. Bawa as an Inspecting Medical Officer and the retirement of Dr. W. W. Margenout. Drs. A. Rajasingham and F. V. Foenander of Grade I., who were acting as Provincial Surgeons, were confirmed to fill the vacancies. Dr. M. Sinnetamby, Medical Superintendent, De Soysa Lying-in Home, retired after thirty-seven years' service. Dr. V. van Langenberg of Grade I. was appointed Superintendent of the Mandapam Camp.

Drs. G. W. van Twent and C. J. Tillekeratna died. The following officers were promoted to Grade I. during the year : Drs. C. H. K. Scharenguivel, A. M. de Silva, R. L. Spittel, H. de Silva, C. L. A. de Silva, S. T. Gunasekara, and C. Sivasithamparam.

Drs. O. D. Gunasekera and V. R. S. Schokman of Grade II. left the service. The following were promoted to Grade II. : Drs. P. K. K. Naidu, T. S. Nair, H. E. Schokman, A. J. Fernando, S. F. Wickramasinghe, H. Amarasinghe, J. M. Somasundram, S. Chelliah, and K. Ponniah.

The following new officers were admitted to the Department : Dr. R. R. Tambar, St. J. Puvirajasingham, P. R. C. Peterson, J. L. Fernando, N. B. P. Goonetilleke, C. H. O. Senanayaka, J. Dadabhoy, J. R. Blazé, A. H. D. R. de Silva, V. Doraisamy, J. D. L. Perera, A. B. Mendis, N. Attygala, A. H. D. A. de Silva, S. R. Gunawardena, and A. C. Fernando. Eight officers of the Department and four passed L.M.S. left for India for war service on July 31, 1919.

G. J. RUTHERFORD,
Principal Civil Medical Officer and
Inspector-General of Hospitals.

Colombo, July 12, 1920.

APPENDIX.

OPIUM.

SINCE the previous report there have been no amendments to, or alterations of, the Ordinance.

2. The selling price of opium remains the same as last year, viz., eating opium 1½ cents per grain and smoking opium 2 cents per grain.

3. The number of opium depôts in the Island, too, remains the same as last year, viz., 54.

4. During the year 71 new opium consumers were registered, as against 43 during the previous year.

5. A statement of opium sold and the amount realized during each quarter of the year is appended. It will be noticed that the total quantity of opium sold for the year is less than that of the previous year, which is inserted for comparison :—

Statement of Opium sold and Amounts realized during each Quarter from January 1, 1919,
to December 31, 1919.

During the Quarter ended	Eating Opium.			Smoking Opium.			Total realized. Rs c.
	Quantity sold. Grains.	Amount realized. Rs. c.	Quantity sold. Grains.	Amount realized. Rs. c.			
March 31, 1919 ..	11,446,841 ..	172,425 33 ..	1,215,475 ..	24,309 50 ..	196,734 83		
June 30, 1919 ..	11,252,115 ..	169,262 93 ..	1,222,250 ..	24,445 0 ..	193,707 93		
September 30, 1919 ..	11,339,704 ..	169,362 79 ..	1,190,375 ..	23,807 50 ..	193,170 29		
December 31, 1919 ..	10,882,756 ..	163,443 79 ..	1,169,175 ..	23,385 50 ..	186,827 29		
Total for 1919 ..	44,921,416 ..	674,494 84 ..	4,707,275 ..	95,945 50 ..	770,440 34		
Total for 1918 ..	50,702,681 ..	565,726 18 ..	4,136,160 ..	82,723 0 ..	625,723 30		

6. The amount realized out of the sale of opium preparations during the year was Rs. 8,149·29.

7. During the year 1919 sixty chests of opium were purchased from India for Rs. 248,211·47, as against sixty chests during the previous year for Rs. 207,677·54.

G. J. RUTHERFORD,
Principal Civil Medical Officer and
Inspector-General of Hospitals.

Colombo, July 12, 1920.